

CHAPTER 9

SIEVES

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CHAPTER 9

SIEVES

1. INTRODUCTION

Sieves aid in the inspection of grain, rice, peas, beans, hops, and processed commodities by separating material by size. For official purposes, only use sieves that are (1) a type and model approved by FGIS; (2) maintained in good operating condition; and (3) tested and examined at the prescribed intervals, in the prescribed manner, and found to be within tolerance.

2. TOLERANCES

- a. Design Requirements. The perforated metal and woven-wire cloth used in the fabrication of hand sieves, dockage tester sieves, rice sizing plates, and powdered commodity sieves must comply with the requirements stated in this chapter.
- b. Grain Test (Sieving) Accuracy MDS.¹

	0.064 x 3/8 inch Wheat	5/64 x 3/4 inch Barley	5.5/64 x 3/4 inch Barley	6/64 x 3/4 inch Barley
Direct Method ²	± 0.2 %	± 0.3 %	± 0.5 %	± 0.7 %
Exchange Method ³	± 0.3 %	± 0.5 %	± 0.7 %	± 1.0 %

3. MAINTENANCE

¹Mean deviation from standard sieve results.

²*Direct comparison method.* An equipment testing procedure wherein transfer standards are tested at the same time and place to compare the performance of two or more units of the same inspection equipment. One unit of the equipment used in the test shall be standard inspection equipment.

³*Sample exchange method.* An equipment testing procedure wherein transfer standards are tested to compare the performance of two or more units of the same inspection equipment installed at different locations. One unit of the equipment used in the test shall be standard inspection equipment.

Maintain sieves in good condition. Check, clean, and repair them prior to initial use and periodically thereafter, as needed. Check the following:

- a. Cleaning. Thoroughly clean each sieve using warm water and detergent, and a soft bristle brush. Even a slight amount of oil on a new sieve will alter its results. Do not use a steel brush to clean sieves.
- b. Sieve Straightening. Check hand sieve plates for bowing or looseness in the sieve frame. Either condition will prohibit the sieve from satisfactorily separating material in a sample. Tighten or eliminate the bow in hand sieve plates by placing the sieve upside down on a level surface and tapping the hem lightly with a hammer around its entire circumference.

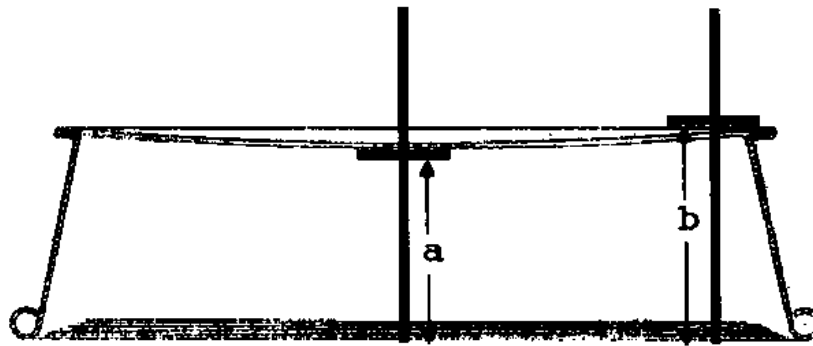


Figure 1, Measuring Sieve Bow

Measure the bow using a narrow steel rule or piece of wire as a depth gauge. Measure distance “a” at the center of the sieve, and distance “b” near the edge. The recommended difference of the measurements (**b - a**) is $\leq 3/16$ inch.

- c. Lodged Material. Inspect the sieves for lodged material and dislodge any material found. Perforated metal sieves, except for rice sizing plates, shall not be struck with the hand to dislodge material caught in the perforations. Free lodged material by running the palm of the hand over the underside of the sieve, forcing the lodged material through the upper side of the sieve perforations. Remove material lodged in rice sizing plates by striking the underside of the plate with a rubber mallet or flat board.

- d. Storage. Store sieves in racks to prevent damage to the perforated metal.

4. STANDARDIZATION

The accuracy of newly perforated metal is determined by a standard referred to as a plug gauge and by visual examination. This examination is not normally performed by field personnel.

- a. Plug Gauge. The gauge is a two-ended, feeler-type device with a "go" end 0.001 inch smaller than the "no go" end.

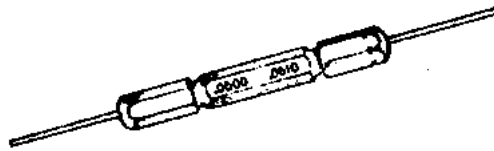


Figure 2, Plug Gauge

- (1) For a given size perforation, a gauge is selected with a "go" end 0.0005 inch smaller than the perforation being measured.
 - (2) The "no go" end shall be 0.0005 inch larger than the perforation. In use, the "go" end should fit and the "no go" end should not fit each perforation.
 - (3) Only trained personnel shall use the plug gauges and then only on newly perforated metal.
- b. Visual Examination. Factors such as perforation sharpness and bevel also affect sieve accuracy. Visually examine the sieve and ensure that the perforations do not appear too sharp or beveled.

5. TESTING

- a. General.
- (1) Test each wheat and barley hand sieve (0.064" x 3/8" oblong sieve, 5/64" x 3/4" slotted sieve, 5.5/64" x 3/4" slotted sieve, and 6/64" x 3/4" slotted

sieve) according to the testing schedule (periodic tests), and whenever their accuracy is in question, including after all repairs (supplemental tests). New sieves that are pre-tested before purchase do not require initial testing, but you must date the *Approved* label when received.

- (2) Check that the mechanical grain sizer is in a true level condition with a spirit level placed on the sieve holder. The sizer must be level front-to-back and side-to-side. Use the leveler legs for this purpose.
 - (a) The sizer provides a horizontal stroke equal to 10 inches \pm 0.25 inch, at approximately 68 complete cycles per minute, and has an automatic resetting counter with a range of 1 to 120 cycles.
 - (b) Oil the sprocket bearings and lower motor bushing twice yearly with a lightweight oil. The sieve holder slide rods may be lubricated with graphite or wiped with an oily cloth. Do not over-lubricate the rods, as dust may adhere to the rods or the sieve holder bearings.
 - (c) The roller chain may be lubricated with graphite or light grease. If needed, the drive chain may be adjusted by loosening the 3 cap screws on the motor mount and moving the motor. Do not tighten the chain too tight. Leave at least 1/4 inch slack from the edge of the chain guard.

b. Test Preparation.

- (1) The testing office (FGIS Headquarters, in the case of field office Standard equipment, or the field office, in the case of all other equipment) shall prepare test samples of wheat or barley.
- (2) Provide a set of samples (one sample for each sieve) to each office for testing the sieves.
- (3) The testing office shall test the samples using the Headquarters Standard or field office Standard; next, place them in moisture-proof containers, and then, send them to the appropriate offices for testing.
- (4) Each sample shall be tested in accordance with the test procedures.

Table 1 - Test Samples

Sieve	Sample	Approximate Composition	
0.064 x 3/8-Inch Oblong Sieve	250 grams of dockage-free wheat with 8.0 percent shrunk and broken kernels	230 g wheat	20 g thin
5/64 x 3/4-Inch Slotted Sieve	250 grams of dockage-free barley with 15.0 percent thin barley	212.5 g Bly	37.5 g thin
5.5/64 x 3/4-Inch Slotted Sieve	250 grams of dockage-free barley with 7.0 percent thin barley	232.5 g Bly	17.5g thin
6/64 x 3/4-Inch Slotted Sieve	250 grams of dockage-free barley with 20.0 percent thin barley	200 g Bly	50 g thin

Note: In order to obtain a reliable test, it is necessary that each test sample present a separation challenge to the sieve. If there are 20-50 kernels lodged in the sieve at the end of a test, it is a good indication that the sample is challenging the sieve.

c. Direct Comparison and Sample Exchange Test Procedures.

- (1) Thoroughly clean the first sieve to be tested (and the Standard sieve, if applicable).

- (2) Mix the test sample well.
- (3) Pour the sample onto the center of the test sieve.
- (4) Test the sieve by either the mechanical or hand method. The mechanical method is preferred.
 - (a) Mechanical Method. Align the perforations of the sieve so that they are parallel with the motion of the sizer. This alignment is extremely important to ensure an accurate test. Place gauging marks on the sizer, bottom pan, and sieves to aid in the alignment of the sieve with the motion of the sizer. Set the counter of the sizer for 30 strokes and then activate the sizer. (Check the action of the sizer to ensure that it traverses 30 times.)
 - (b) Hand Method. Hold the sieve level in both hands directly in front of your body with elbows close to your sides. Hold the sieve so that the grain will move lengthwise with the perforations. In a steady sieving motion, move the sieve from right to left approximately 10 inches, and return from left to right to complete the operation. Repeat the operation 30 times.
- (5) When the sample has been shaken 30 times, pour the material that passed through the sieve into a clean pan and set it aside for weighing.
- (6) Then, pour the grain that remains on top of the sieve into a separate clean pan.
- (7) Next, invert the sieve over its bottom pan and gently push the material lodged in it into the bottom pan.
- (8) Pour the material from the bottom pan into the pan that contains the grain.
- (9) Weigh the sieve separation on a precision-class scale (division size not more than 0.01 gram) and record the results on a form FGIS-924, Barley Pearler and Sieve Test.
- (10) Combine the sample and separation and repeat the procedure (steps 3 through 9) two times. Record all readings on a form FGIS-924.
- (11) For direct comparison testing only, after running the test sample through the test sieve three times, run the test sample through the Standard sieve three times (steps 2 through 9). Record the results on the form FGIS-924.

- (12) If required, test other sieves in the same manner as the first. Record the results on the form FGIS-924.
- (13) Determine the average percentage of the separations.
- (14) Evaluation of Results
 - (a) Direct Comparison. Complete the form FGIS-924 and compare the results of the test sieve to the results of the Standard sieve. If the mean deviation of the test results is within the allowable tolerance, the sieve(s) is acceptable.
 - (b) Sample Exchange.
 - 1) After completing the tests, combine the sample and separation, and place in a moisture-proof container identified by location and type of sieve.
 - 2) Return the samples to FGIS Headquarters or the FGIS field office, as appropriate. Include a properly completed form FGIS-924 with the samples.
 - 3) Upon receipt of the returned forms and samples, FGIS headquarters or the field office, as appropriate, shall complete the form by recording their test results, and then comparing the results of the two tests. If the mean deviation of the test results is within the allowable tolerance, the sieve(s) is acceptable.
- (15) In the case of out-of-tolerance sieves, document on the form FGIS-924 all pertinent facts and actions (including adjustments, retest, and follow-up actions).
- (16) After evaluating the test results, the original of the completed form FGIS-924 shall be returned to the test unit operator. A copy of the form shall be retained by FGIS Headquarters or the FGIS field office.

UNITED STATES DEPARTMENT OF AGRICULTURE
Grain Inspection, Packers and Stockyards Administration

BARLEY PEARLER AND SIEVE TEST

NOTE: TEST UNIT OPERATOR - FILL IN SHADED AREAS ONLY.

DATE MAILED
9-4-96

FIELD OFFICE
Moscow

AGENCY
Moscow, ID

LOCATION
Moscow, ID

SIEVE TEST

1

2

3

4

INSTRUCTIONS:

(1) Read Chapter 9 of Equipment Handbook. (2) Clean, level and oil sieve shaker before starting. (3) Inspect sieves for condition: if sieving surfaces are dirty, loose or bowed, refer to the sieve maintenance section of Chapter 9.

TEST SIEVE RESULTS		STANDARD SIEVE RESULTS				SUMMARY OF RESULTS				
SIEVING METHOD: <input type="checkbox"/> HAND <input checked="" type="checkbox"/> MECHANICAL		SIEVING METHOD: <input type="checkbox"/> HAND <input checked="" type="checkbox"/> MECHANICAL		GRAMS SIEVED OUT		TEST SIEVE RESULTS	STAND. SIEVE RESULTS	DEVIATION FROM STAND. A.R.D.	TOLERANCE ALLOWED	
SIEVE NO.	SIEVE TYPE	SIEVE NO.	SIEVE TYPE	SIZE	SIZE					AVG. PERCENT
A	Wht. 004 x 3/8	1	Wht. 004 x 3/8	20.01	19.59	19.90	8.0	0	0.3	X
B	Blk. 5/16 x 3/4	2	Blk. 5/16 x 3/4	36.89	36.82	36.82	14.7	+1.5	X	
C	Blk. 5/8 x 3/4	3	Blk. 5/8 x 3/4	17.29	17.00	16.95	6.8	10.7	X	18
D	Blk. 3/4 x 3/4	4	Blk. 3/4 x 3/4	50.37	50.67	50.83	20.2	0	1.0	X
RESULTS BY: [Signature]		RESULTS BY: [Signature]		DATE: 9-5-96	DATE: 9-3-96	DATE: 9-9-96				
REMARKS: [Signature]		REMARKS: [Signature]		20	22	24				

BARLEY PEARLER TEST

INSTRUCTIONS: (1) Read Chapter 8 of Equipment Handbook. (2) Clean, oil and make necessary adjustments before starting. (3) Use a stopwatch or other accurate timing device for testing. (4) Drop sample into peeling chamber before starting motor. (5) Start peeler and timer at same time. (6) Put stop to empty peeling chamber when assigned peeling time has elapsed. Grain should clear peeling chamber before motor is switched off.

TEST PEARLER RESULTS				STANDARD PEARLER RESULTS				SUMMARY OF RESULTS				
PEARLING TIME		PEARLING TIME		PEARLING TIME		PEARLING TIME		TEST PEARLER RESULTS	STANDARD PEARLER RESULTS	DEVIATION FROM STANDARD	TOLERANCE ALLOWED	TIMER DEVIATION-Tolerance
TEST PEARLER NUMBER	FIRST PEARL	SECOND PEARL	THIRD PEARL	TEST PEARLER NUMBER	FIRST PEARL	SECOND PEARL	THIRD PEARL					
RESULTS BY	DATE			RESULTS BY	DATE			RECOMMENDED ACTION				
REMARKS				REMARKS				<input type="checkbox"/> KEEP IN SERVICE <input type="checkbox"/> RE-TEST <input type="checkbox"/> REPAIR				

FORM FGIS-924 (SEP 95)

INSTRUCTIONS FOR COMPLETING FORM FGIS-924,
"BARLEY PEARLER AND SIEVE TEST"

- 1 Date the test samples are mailed to the FGIS field office or agency, as applicable.
- 2 FGIS field office that performed the test, when applicable.
- 3 Agency that performed the test, when applicable.
- 4 Location of the field office or agency that performed the test.
- 5 Method used for testing--mechanical or hand sieving.
- 6 Test sieve's assigned number.
- 7 Size of sieve.
- 8 Three test results, shown to 0.01 gram.
- 9 Average of the three test results, shown as a percentage of 250 g.
- 10 Standard sieve's assigned number.
- 11 Size of sieve.
- 12 Three test results, shown to 0.01 gram.
- 13 Average of the three Standard results, shown as a percentage of 250 g.
- 14 Average of the test sieve's results. Item 9 is rounded to 0.1 % (This is the same number of decimals as the stated tolerance).
- 15 Average of the Standard sieve's results. Item 13 is rounded to 0.1 %.

- 16 Difference between the test sieve's and the Standard sieve's average results (see items 15 and 14). Show any plus or minus deviation from the Standard, including the appropriate sign.
- 17 Show the appropriate tolerance (see page 9-1).
- 18 Indicate whether the test sieve is in tolerance (mean deviation from Standard equal to or less than tolerance level) or out of tolerance (mean deviation from Standard exceeds tolerance level).
- 19 Name of person who tested the test sieve.
- 20 Date that testing of test sieve(s) was completed.
- 21 Name of person who tested the Standard sieve(s).
- 22 Date that testing of the Standard sieve(s) was completed.
- 23 Name of person who determined whether the test sieve(s) was or was not in tolerance.
- 24 Date the determination was completed.
- 25 Remarks

Perforation Size						Width		Shape	Center		End Bridges		Pattern
Inches		mm				Inches	mm		Inches	mm	Inches	mm	
----- Hand Sieves -----													
3/64	x	3/8	1.19	x	9.53	.0469	1.19	Oblong	0.125	3.18	0.055	1.40	End Stg
3/64	x	11/32	1.19	x	8.73	.0469	1.19	Oblong	1/8	3.18	0.055	1.40	End Stg
3.875/64	x	½	1.54	x	12.70	.0605	1.54	Slot	5/32	3.97	5/32	3.97	End Stg
.064	x	3/8	1.63	x	9.53	.064	1.63	Oblong	1/8	3.18	.0525	1.33	End Stg
4.5/64	x	½	1.79	x	12.70	.0703	1.79	Oblong	5/32	3.97	.0625	1.59	End Stg
5/64	x	15/32	1.98	x	11.91	.0781	1.98	Slot	9/64	3.57	5/32	3.97	End Stg
5/64	x	3/4	1.98	x	19.05	.0781	1.98	Slot	3/16	4.76	5/32	3.97	End Stg
5.5/64	x	3/4	2.18	x	19.05	.0859	2.18	Slot	3/16	4.76	5/32	3.97	End Stg
6/64	x	15/32	2.38	x	11.91	.0937	2.38	Slot	3/16	4.76	5/32	3.97	End Stg
6/64	x	3/4	2.38	x	19.05	.0937	2.38	Slot	3/16	4.76	5/32	3.97	End Stg
6.5/64	x	15/32	2.58	x	11.91	.1015	2.58	Slot	3/16	4.76	5/32	3.97	End Stg
8/64	x	3/4	3.18	x	19.05	.1250	3.18	Oblong	1/4	6.35	5/32	3.97	End Stg
9/64	x	3/4	3.57	x	19.05	.1406	3.57	Oblong	1/4	6.35	5/32	3.97	End Stg
10/64	x	3/4	3.97	x	19.05	.1562	3.97	Slot	9/32	7.14	5/32	3.97	End Stg
10/64	x	3/4	3.97	x	19.05	.1562	3.97	Oblong	5/16	7.94	5/32	3.97	End Stg
11/64	x	3/4	4.37	x	19.05	.1718	4.36	Slot	5/16	7.94	5/32	3.97	End Stg
12/64	x	3/4	4.76	x	19.05	.1875	4.76	Slot	5/16	7.94	5/32	3.97	End Stg

Perforation Size						Width		Shape	Center		End Bridges		Pattern
Inches		mm				Inches	mm		Inches	mm	Inches	mm	
----- Hand Sieves -----													
13/64	x	3/4	5.16	x	19.05	.2031	5.16	Slot	5/16	7.94	5/32	3.97	End Stg
14/64	x	3/4	5.56	x	19.05	.2187	5.55	Slot	0.125	11.11	5/32	3.97	End Stg
5/64		ins.circle	1.98			.0781	1.98	Tri	1/4	6.35	---	---	Single
.089		ins.circle	2.26			.0890	2.26	Tri	.134	3.40	---	---	Double
2.5/64			0.99					Round	.075	1.91			Stag.
4.5/64			1.79					Round	1/8	3.18			Stag.
4/64			1.59					Round	1/8	3.18			Stag.
5/64			1.98					Round	5/32	3.97			Stag.
1/12			2.12					Round	1/8	3.18			Stag.
5.5/64			2.18					Round	9/64	3.57			Stag.
6/64			2.38					Round	5/32	3.97			Stag.
6.5/64			2.58					Round	5/32	3.97			Stag.
7/64			2.78					Round	5/32	3.97			Stag.
8/64			3.18					Round	3/16	4.76			Stag.
9/64			3.57					Round	3/16	4.76			Stag.
10/64			3.97					Round	7/32	5.56			Stag.
12/64			4.76					Round	1/4	6.35			Stag.

Perforation Size						Width		Shape	Center		End Bridges		Pattern
Inches			mm			Inches	mm		Inches	mm			
----- Hand Sieves -----													
14/64			5.56					Round	0.125	7.94			Stag.
15/64			5.95					Round	5/16	7.94			Stag.
16/64			6.35					Round	3/8	9.53			Stag.
17/64			6.75					Round	3/8	9.53			Stag.
24/64			9.53					Round	17/32	13.49			Stag.
28/64			11.11					Round	19/32	15.08			Stag.
30/64			11.91					Round	11/16	17.46			Stag.

Specifications for Perforated Metal Hand Sieves.

Kind & Quality of Metal: Sheet aluminum 3003 H 14

Thickness of Metal: No. 20 B&S gauge, decimal equivalent 0.032 inch (0.81 mm) plus or minus 0.0015 inch (0.04 mm).

Accuracy of Perforation: Precision - plus or minus 0.0005 inch (0.013 mm), Commercial - plus or minus 0.001 inch (0.025 mm).

Condition of Sieve Metal: Cleanly punched, and free from burrs and other surface imperfections

Perforation Size							Width		Shape	Center		End Bridges		Pattern
Inches				mm			Inches	mm		Inches	mm			
No.	----RICE SIZING PLATES----													
5	.0781			1.98					Round	5/32	3.97			Stag.
6	.0940			2.39					Round	5/32	3.97			Stag.
0.135	.1350			3.43					Round	3/16	4.76			Stag.
10	.1563			3.97					Round	1/4	6.35			Stag.
12	.1875			4.76					Round	1/4	6.35			Stag.

Specifications for perforated metal rice sizing plates .

Kind & Quality of Metal: Sheet aluminum 5052 H 34
Thickness of Metal: No. 16 B&S gauge, decimal equivalent 0.05 inch plus or minus 0.0015 inch
Accuracy of Perforation: Precision - plus or minus 0.0005 inch
Condition of Sieve Metal: Cleanly punched, and free from burrs and other surface imperfections

Perforation Size							Width		Shape	Center		End Bridges		Pattern
Inches			mm				Inches	mm		Inches	mm	Inche	mm	
No.	----- Carter Dockage Tester Sieves -----													
22	$\frac{3-7/8}{64}$	x	½	1.54	x	12.70	.0605	1.54	Slot	5/32	3.97	5/32	3.97	Stag.
4	.064	x	3/8	1.63	x	9.53	.0640	1.63	Oblong	1/8	3.18	.0525	1.33	Stag.
5	.070	x	½	1.78	x	12.70	.0700	1.78	Oblong	5/32	3.97	.0625	1.59	Stag.
23	$\frac{4-7/8}{64}$	x	¾	1.93	x	19.05	.0760	1.93	Slot	3/16	4.76	5/32	3.97	Stag.
24	5/64	x	½	1.98	x	12.70	.0781	1.98	Slot	3/16	4.76	5/32	3.97	Stag.
25	6/64	x	½	2.38	x	12.70	.0937	2.38	Slot	3/16	4.76	5/32	3.97	Stag.
26	$\frac{6-1/2}{64}$	x	½	2.58	x	12.70	.1015	2.58	Slot	3/16	4.76	5/32	3.97	Stag.
6	5/64		ins.circle	1.98			.0781	1.98	Tri.	1/4	6.35			Single
8	.089		ins.circle	2.26			.0890	2.26	Tri.	.134	3.40			Double
1	$\frac{2-1/2}{64}$			0.99			.0391	0.99	Round	.075	1.91			Stag.
7	$\frac{4-1/2}{64}$			1.79			.0703	1.79	Round	1/8	3.18			Stag.
2	5/64			1.98			.0781	1.98	Round	5/32	3.97			Stag.
20	6/64			2.38			.0937	2.38	Round	5/32	3.97			Stag.
27	$\frac{6-1/2}{64}$			2.58			.1016	2.58	Round	5/32	3.97			Stag.
21	7/64			2.78			.1093	2.78	Round	5/32	3.97			Stag.
3	12/64			4.76			.1875	4.76	Round	1/4	6.35			Stag.

Perforation Size							Width		Shape	Center		End Bridges		Pattern
Inches			mm				Inches	mm		Inches	mm			
No.	----- Indented and Special Hole Perforations -----													
30	7/64			2.78			.1093	2.78	Round	13/16	20.64			Stag.
28	9/64			3.57			.1406	3.57	Round	13/16	20.64			Stag.
29	$\frac{9-1/2}{64}$			3.77			.1484	3.77	Round	13/16	20.64			Stag.
31	10/64			3.97			.1562	3.97	Round	13/16	20.64			Stag.
9	.070	x	½	1.78	x	12.70	.070	1.78	Oblong	5/32	3.97			Stag.
	1/12			2.12			.0833	2.12	Round	1/8	3.18			Stag.
9	.070	x	½	1.78	X	12.70	.070	1.78	Slotted	5/32	3.97			Even
	1/12			2.12			.0833	2.12	Round	1/8	3.18			Stag.

Specifications for perforated metal Carter Dockage Tester Sieves.

Kind & Quality of Metal: Sheet aluminum 3003 H 14

Thickness of Metal: No. 20 B&S gauge, decimal equivalent 0.032 inch plus or minus 0.0015 inch.

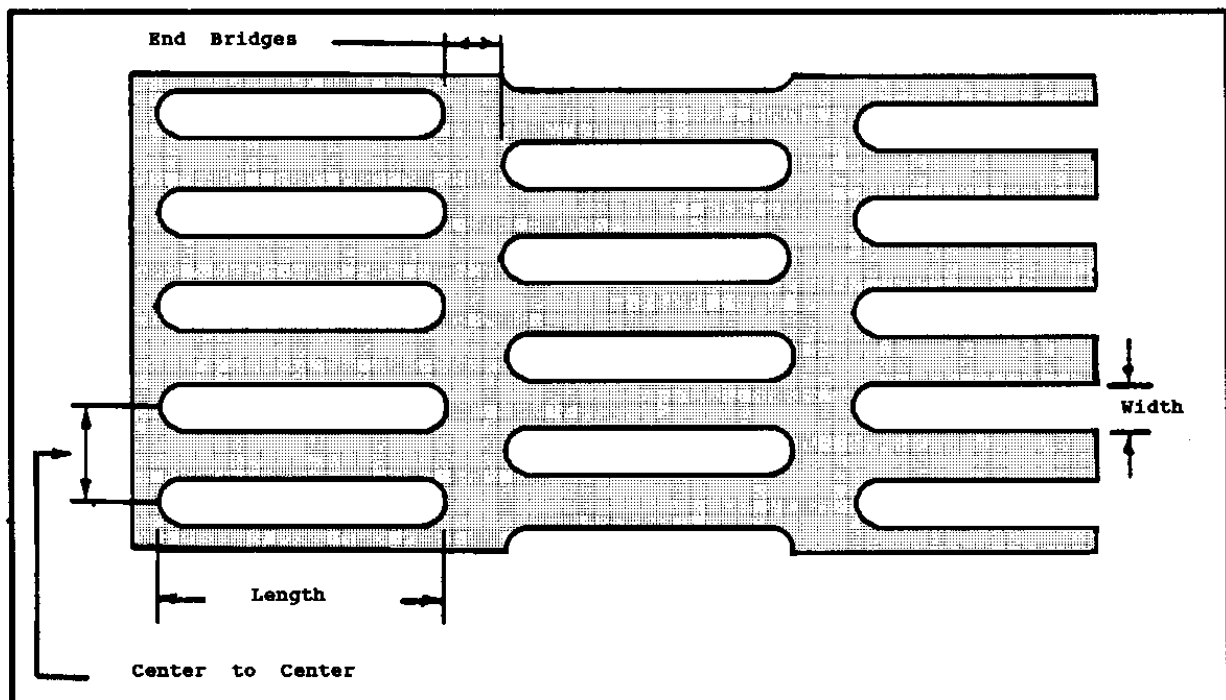
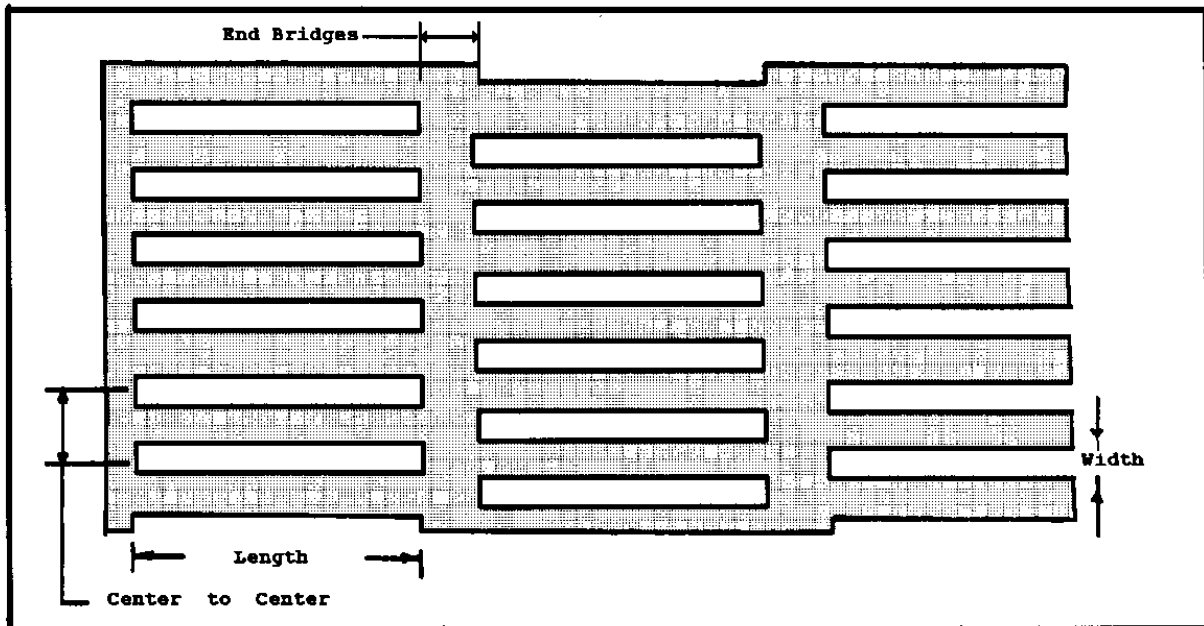
Accuracy of Perforation: Precision - plus or minus 0.0005 inch (0.013 mm), Commercial - plus or minus 0.001 inch (0.025 mm).

Condition of Sieve Metal: Cleanly punched, and free from burrs and other surface imperfections

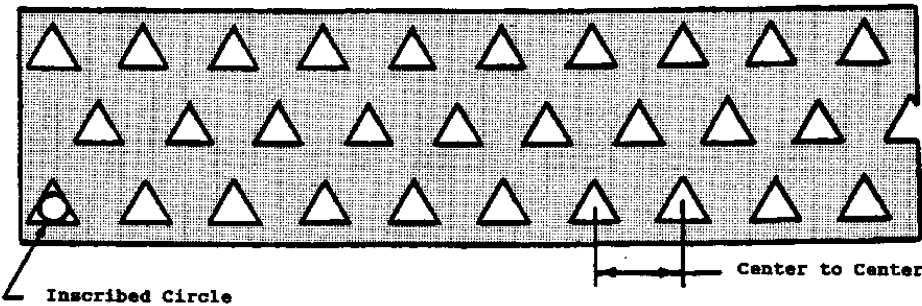
Specifications for U.S. Woven Wire Sieves					
Designation		Opening		Nominal Wire Diameter	
Standard	Alternate	mm	inch	mm	inch
45.3 mm	1 ¼ inch	45.3	1.75	4.85	.1909
38.1	1 ½	38.1	1.50	4.59	.1807
32.0	1 ¾	32.0	1.25	4.23	.1665
26.9	1.06	26.9	1.06	3.90	.1535
25.4	1	25.4	1.00	3.80	.1496
22.6	¾	22.6	0.875	3.50	.1378
19.0	¾	19.0	0.750	3.30	.1299
16.0	¾	16.0	0.625	3.00	.1181
13.5	.530	13.5	0.530	2.75	.1083
12.7	½	12.7	0.500	2.67	.1051
11.2	7/16	11.2	0.438	2.45	.0965
9.51	3/8	9.51	0.375	2.27	.0894
8.00	5/16	8.00	0.312	2.07	.0815
6.73	.265	6.73	0.265	1.87	.0736
6.35	¼	6.35	0.250	1.82	.0717
5.66	Nº 3 ½	5.66	0.223	1.68	.0661
4.76	4	4.76	0.187	1.54	.0606
4.00	5	4.00	0.157	1.37	.0539
3.36	6	3.36	0.132	1.23	.0484
2.83	7	2.83	0.111	1.10	.0430
2.38	8	2.38	0.0937	1.00	.0394
2.00	10	2.00	0.0787	.900	.0354
1.68	12	1.68	0.0661	.810	.0319
1.41	14	1.41	0.0555	.725	.0285
1.19	16	1.19	0.0469	.650	.0256
1.00	18	1.00	0.0394	.580	.0228
841 micron	20	0.841	0.0331	.510	.0201
707	25	0.707	0.278	.450	.0177
595	30	0.595	0.234	.390	.0154
500	35	0.500	0.0197	.340	.0134
420	40	0.420	0.0165	.290	.0114
354	45	0.354	0.0139	.247	.0097
297	50	0.297	0.0117	.215	.0085
250	60	0.250	0.0098	.180	.0071
210	70	0.210	0.0083	.152	.0060
177	80	0.177	0.0070	.131	.0052
149	100	0.149	0.0059	.110	.0043
125	120	0.125	0.0049	.091	.0036
105	140	0.105	0.0041	.076	.0030
88	170	0.088	0.0035	.064	.0025
74	200	0.074	0.0029	.053	.0021
63	230	0.063	0.0025	.044	.0017
53	270	0.053	0.0021	.037	.0015
44	325	0.044	0.0017	.030	.0012
37	400	0.037	0.0015	.025	.0010

Perforation Diagrams

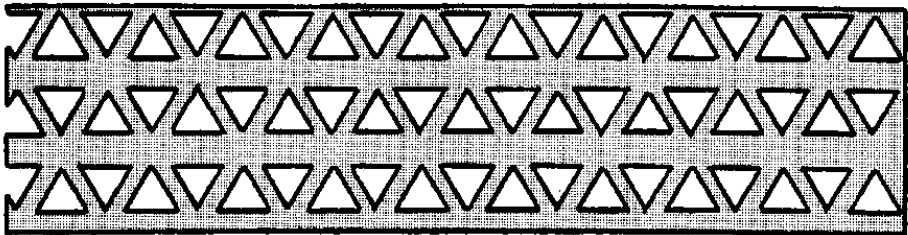
Slotted, End- Staggered



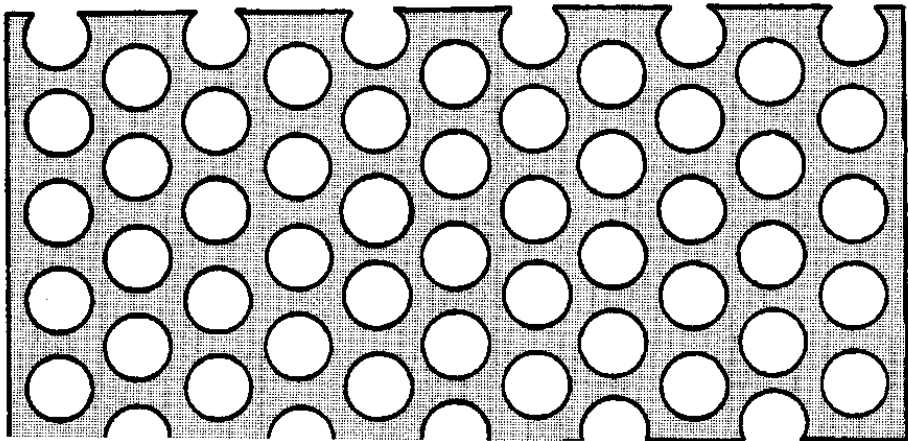
Oblong, End-staggered



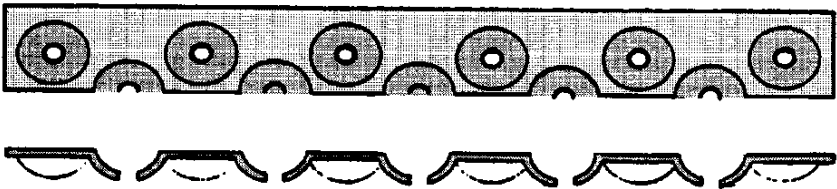
Triangular, single



Triangular, double



Round-hole, staggered



Indented Perforation